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~~METHOD FOR THE PRODUCTION OF A FLANGE ON A METAL BLANK, AND TRANSMISSION PART~~

BACKGROUND AND SUMMARY

[00001] The ~~invention~~ present disclosure relates to a method for the production or construction of a flange on a circular metal blank by ~~means of~~ one or more pressure rollers rotating relative to the circular metal blank, and to a transmission part having such a flange.

[00002] From German Patent Document DE 44 00 257 C1, as well as the parallel members of the patent family, [[(]]among others, the European, U.S. and Japanese patent documents[[)]][[], it is known to construct a hub on a circular metal blank in a non-cutting manner ~~in that~~. That is, a metal sheet bar or blank is carried by a tool of a main spindle and rotating relative to one or more pressure rollers[[,]]. Pressure is first applied slightly axially and then, after the sinking into the circular blank, applied radially[[,]]. The blank is reduced in its thickness by pressing by ~~means of~~ the pressure roller and is shaped into a cylindrical projection protruding from the metal sheet bar, which projection penetrates the circular metal blank. This method is reliable and cost-effective and has had good results in practice. It is particularly suitable for producing hubs which project axially relatively

high from the surface of the circular metal blank facing the hub. The circular metal blank is held on its outer circumference by ~~means of~~ clamping chucks.

[00003] From German Patent Document DE 44 44 526, it is known that the circular metal blank is not held by ~~means of~~ clamping chucks but by ~~means of~~ an abutment chuck which has a ring-shaped construction and a slightly larger inside diameter than the circular metal blank in its starting condition. During the first sinking of the pressure roller into the axial surface of the circular metal blank, the latter is pressed on its outer circumference against the inner circumference of the abutment chuck and is held there in a secure manner. Then the pressure roller is moved axially toward the interior so that, ~~again~~ in the manner of German Patent Document DE 4400257C1, a hub forms around a center mandrel ~~or the like~~.

[00004] Based on this state of the art, ~~it is an object of the invention to provide~~the present disclosure provides a method by ~~means of~~ which ~~also~~ [["]]flatter[["]] hubs, ~~in the following called~~or flanges, ~~can be~~are produced in a non-cutting manner on circular metal blanks. In particular, flanges are ~~to be~~ constructed on the metal roll whose radial ring width is greater than ~~their~~ the axial height. In particular, it ~~should also be possible for~~is within the scope of the present disclosure that the flange ~~to be~~is slightly thicker than the starting material.

[00005] ~~This task is solved by the object of Claim 1.~~The present disclosure relates to a method for the production of a flange on a circular metal blank by at least one pressure roller. The method steps include: providing a circular metal blank; providing at least one pressure roller; forming a conically shaped structure on the circular metal blank, the conically shaped structure tapering toward a median perpendicular of the circular metal blank; and, forming a flange on the circular metal blank by a subsequent treatment, the flange being formed from the conical-shaped structure.

[00006] Accordingly, a method of constructing a flange on a circular metal blank has at least the following steps:

- By ~~means of~~ a pressure roller, a structure which~~, in particular,~~ is conical and tapers toward ~~the~~ a mean perpendicular of the circular metal blank, is formed on the circular metal blank, and
- a flange is formed from the conical structure by ~~means of~~ a subsequent treatment.

[00007] As an alternative, ~~the~~ another method for the production of a flange on a circular metal blank may also comprise the following steps:

- By ~~means of~~ at least one rotatable pressure roller, ~~the~~ an axial thickness of the circular metal blank is reduced at least in sections along its radial dimension and the material is shaped into a hub-type and/or conical structure, and
- from the structure which has the shape of a hub and/or is conical ~~particularly~~ toward the mean perpendicular, a flange is formed on the circular metal blank by ~~means of~~ a subsequent treatment.

[00008] ~~In particular, it~~It is ~~conceivable~~ within the scope of the present disclosure that the axial dimension of the flange is smaller than its radial dimension. However, the flange should ~~preferably~~ be axially thicker than the initial workpiece. ~~Particularly preferably,~~ ~~the~~The radial dimension of the flange is more than twice, ~~particularly~~ and may be more than three times, as large as its axial dimension, which ~~is~~ may be advantageous ~~particularly~~ when implementing or producing starter rims with relatively flat flanges made of thin circular blanks as the initial workpiece.

[00009] The circular blanks with flange attachments ~~which can easily be~~ produced in ~~such a manner in a few steps~~accordance with the methods of the present disclosure from circular metal blanks, are ~~particularly~~ suitable for the production of engine and transmission parts of all types ~~which are to~~. Such circular blanks with flange attachments have a flat flange

attachment in ~~the~~ a median area, particularly around a centric hole extending through the circular blank.

[00010] The forming of the conical structure can ~~particularly~~ take place in ~~the most~~a simple manner in that ~~the~~ an adjustment angle ~~(α)~~"α" of the pressure roller relative to the axial surface of the circular metal blank is greater than 90°. ~~Particularly good~~Good results are achieved when the angle of adjustment ~~(α)~~"α" of the pressure roller relative to the axial surface of the circular metal blank is greater than 110° and smaller than 170°, ~~particularly~~ and when the angle "α" is greater than 115° and smaller than 150°.

~~[00011] Advantageous further developments are indicated in the subclaims.~~

~~012~~[00011] ~~Preferably, the~~The circular metal blank is held on its outer circumference by an abutment chuck. In addition, it is advantageous in the case of very thin circular metal blanks, for example, [[(]]for starter rims~~, etc.)~~ for the circular metal blank to be held down on its side facing the pressure roller at least in sections in ~~the~~ an outer area by ~~means of~~ a ring. In this manner, "thin" starter rims for engines can be manufactured ~~particularly well~~, and in which case a rim with an inner flange can be produced from a disk-type circular blank having a thickness of only a few millimeters, for example [[(]]less then five millimeters[[)]]. In ~~this~~ such a case, the circular blank ~~is~~ may be reduced to a thickness of, for example, only 3 mm in a median radial area. Then the resulting inner projection is reshaped without cutting, for example, on a press, to form the flange ~~(particularly on a press)~~, and ~~the~~ an outer edge can be formed in a manner known ~~per se~~ in the fashion of a starter rim.

~~013~~[00012] The flange is ~~preferably~~ constructed on the side of ~~the~~ a circular metal blank facing away from the pressure roller.

~~014~~[00013] However, ~~surprisingly,~~ it is ~~also conceivable~~within the scope of the present disclosure for the flange to be constructed on ~~the~~ a side of the circular metal blank facing the pressure roller if the tool has a corresponding recess in the area provided for the flange.

Likewise, it is ~~conceivable~~ within the scope of the present disclosure for the flange to extend on both axial sides of the circular metal blank.

~~015~~ [00014] Another ~~advantageous~~ embodiment ~~is characterized in that the~~ includes a flange that is pressed into a tool having a contour, ~~particularly~~ which may be a toothing, so that, on its side facing the tool, the flange is provided with a corresponding contour, ~~particularly~~ for example, a toothing.

~~016~~ [00015] ~~The invention also creates~~ The present disclosure includes creating a transmission part with a flange, ~~particularly~~ around a centric bore~~, the~~. The flange of the transmission part ~~being~~ is produced by one or more of the methods according to ~~a method of one of Claims 1 to 21~~ the present disclosure. The flange is ~~and being~~ connected in one piece with the ~~remaining~~ transmission part. ~~This~~ The transmission part ~~is preferably~~ may be constructed as a starter rim which is produced from a circular blank having a starting width or axial thickness of less than 7 mm, ~~particularly~~ or, for example, less then 5 mm, ~~preferably~~ or, for example, less than 4 mm~~, in which case the~~. The starter rim, in sections, is thinner than ~~the~~ an initial width of the circular blank, and ~~in which case~~ the starter rim has a flange toward an inner passage hole~~, which~~. The flange is formed on in one piece by pressing and is more than twice, ~~particularly~~ or more than four times as wide in a [[(]]radial dimension[[)]] as it is high in an [[(]]axial dimension[[)]].

~~017~~ [00016] In ~~the case of the~~ a starter rim according to the ~~state of the~~ known art, the flange was produced from a separate ring which was ~~place~~ placed on a circular blank. ~~Surprisingly, this~~ Such an arrangement can be eliminated, according to the ~~invention~~ present disclosure. ~~Preferably~~ According to the present disclosure, a gear rim is attached or shaped in one piece to the outer circumference of the starter rim. The appearance of the starter rim is basically similar to that ~~of~~ as shown in Figure 4 of the present disclosure. However, the proportions ~~are~~ may be different because the flange is only slightly higher than the initial circular blank, as shown in [[(]]Figure 5[[)]] of the present disclosure.

~~018~~[00017] ~~In the following, the invention will be described in detail by means of embodiments with reference to the drawing.~~Other aspects of the present disclosure will become apparent from the following descriptions when considered in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

~~019~~[00018] Figure 1 is a view of a circular metal blank as ~~the~~ a starting workpiece before ~~its~~ machining[[;]], according to the present disclosure.

~~020~~[00019] Figure 2 is a view of the circular metal blank of Figure 1 during a first machining step[[;]].

~~021~~[00020] Figure 3 is a view of the circular metal blank of ~~Figures 1 and~~Figure 2 during another operating step, ~~schematically~~ in which two different ~~possibilities being~~subsequent treatment embodiments are shown for ~~implementing~~ this operating step~~; and~~, as represented by one roller in solid lines and another in dotted lines.

~~022~~[00021] Figure 4 is a view of the circular metal blank ~~with~~ of Figure 1 having a non-~~cuttingly~~ cutting-produced flange section[[;]].

~~023~~[00022] Figure 5 is a view of a blank machined according to ~~the~~ a method of the ~~invention~~ present disclosure for producing a starter rim.

~~024~~[00023] Figure 1 ~~illustrates~~ is an illustrated embodiment of a disk-shaped circular metal blank 1 which is penetrated by a centric bore 2 ~~and which, in the~~. In a manner ~~of~~ similar to a placing of blank 12 in tool 11, as shown in Figure 5, ~~is~~ circular metal blank 1 may be placed in a tool 11 which tool 11 rotates about the axis S during ~~the~~ a machining of circular metal blank 1.

~~025~~[00024] ~~In the following the~~An axial thickness of the circular metal blank 1 in ~~its~~ a starting condition is marked with the reference symbol "d"~~; the~~. A radius of the centric bore or passage hole 2 before the machining ~~has~~ is marked with the reference symbol ~~"r1" and after~~R_1. After the machining ~~has~~ the radius of the centric bore 2 is marked with the

reference symbol ~~"r2"; the~~R_2. An axial dimension, or height, of ~~the~~ a flange 7, [[-]] as shown in Figure 4, [[-]] after the machining ~~has the~~, is marked with reference symbol "a" and ~~the~~ a radial dimension ~~has the~~, or width, is marked with reference symbol "b".

~~026~~[00025] As ~~the~~ a starting workpiece, the circular metal blank 1 is placed in a tool 11 and is held on ~~its~~ an outer circumference~~, preferably~~ by an abutment chuck in ~~the~~ a manner of German Patent Document DE 44 44 536 C1. ~~Its centric~~Centric bore 2 may be penetrated by a ~~preferably~~ conically shaped centric mandrel (not shown).

~~027~~[00026] ~~The actual machining~~Machining at first ~~follows~~ may follow the method described in German Patent Document DE 44 00 257 C1 or DE 44 44 536 C1~~; that is, preferably~~. That is, at least one rotatable pressure roller 3 rotating relative to the circular sheet metal blank 1, sinks at first axially from ~~the~~ an outside into ~~the~~ an axial side of the circular metal blank 1 rotating with the tool 11, the axial side facing away from the tool 11 (not shown ~~here~~), so that, when a ring-type abutment chuck is used, ~~this~~ circular metal blank 1 is at first form-lockingly placed on ~~the~~ an inner circumference of ~~this~~ the abutment chuck.

~~028~~[00027] As a result of ~~the~~ a simultaneous or subsequent movement of the pressure roller 3, which rotates relative to the circular sheet metal blank 1, radially toward ~~the~~ an interior, that is, [[-]] toward the bore 2[[–]], a hub-type or hub-like conically tapering structure 4 is formed on the inner circumference of the circular metal blank 1 or on the bore 2. ~~This~~ Tapering structure 4 on the inner circumference of the circular metal blank 1 projects in a conical shape radially to the outside because ~~the~~ an angle of adjustment α on ~~the~~ an advancing flank 9 of the pressure roller 3 relative to ~~the~~ a surface of the circular metal blank 1, is negative or greater than 90°. The angle of adjustment ~~preferably is~~ may be between 110° and 170°, ~~particularly~~ and may be between 115° and 140°.

~~029~~[00028] ~~The~~ Tapering conical structure 4 ~~will~~ is then ~~be~~ subjected to a subsequent treatment ~~for forming~~to form the flange 7~~, in order to achieve a shape, where the~~. The axial height "a" of the flange 7 is smaller than ~~its~~ radial dimension "b".

~~030~~[00029] ~~This~~ The subsequent treatment ~~can take~~takes place by ~~means of~~ another pressure roller which is constructed ~~in the manner of~~as a rotatable pressure or adjustment roller 5 which is guided radially from ~~the~~ an outside to ~~the~~ an inside or, by ~~means of~~ an additional pressure roller 6, which ~~again~~ is guided axially from the outside to the inside~~, specifically~~. The subsequent treatment takes place such that, directly in ~~the~~ a next operating step, the shape of ~~a~~ flange 7 is formed from the tapering conical structure (~~particularly~~4 which may be around a centric mandrel[[)]]. ~~The~~ An adjustment angle of the additional rotatable pressure roller 6 is ~~preferably~~ at approximately 90°.

~~031~~[00030] It is ~~also conceivable~~within the scope of the present disclosure that, when forming the tapering conical structure 4, simultaneously an axially and/or radially ~~applicable~~ applied rotatable hold-down roller (~~see reference number~~ 15, as shown, for example, in Figure 5[[)]], of ~~the~~ a type ~~of~~ similar to the ~~adjusting~~ admustment roller 5, ~~is~~ may also be running on ~~the~~ a side of ~~the~~ circular metal blank 1 situated radially opposite the pressure roller~~, which hold-down~~ 6. Hold-down roller 15 presses down the circular metal blank 1, at least in sections, so that the ~~latter~~ circular metal blank 1 does not lift off the tool 11 or arch forward from the ~~latter~~ tool 11 in ~~the~~ an area in which the pressure roller 3 is moving.

~~032~~[00031] As an alternative, a subsequent treatment with other devices is also ~~conceivable, thus, by means of~~within the scope of the present disclosure. Such other devices include a press ~~or the like,~~ which ~~then, as an alternative,~~ shapes the flange 7 from ~~the~~ a hub-type structure. However, ~~the~~ a subsequent treatment in the same chucking arrangement with another forming roller is ~~preferable~~ also possible and may be simple.

~~033~~[00032] Although another operating step is ~~therefore~~ required for forming the flange 7, [[-]] in contrast to the forming of a hub ~~according to the above-mentioned type~~ , ~~specifically~~as mentioned above, such as the subsequent treatment of the tapering conical structure 4, it ~~surprisingly becomes~~is possible, by using a forming and non-cutting cold-working

pressure forming method, to precisely construct ~~also~~ very flat flanges on circular metal blanks whose diameter is smaller than the starting diameter of the circular metal blank 1.

~~034~~[00033] As an alternative, it is also ~~conceivable~~ within the present disclosure to carry out ~~the~~ a sinking directly from ~~the~~ an outer circumference radially into ~~the~~ a workpiece [[(]]. That can be done if, for example, the axial dimension of the abutment chuck is slightly smaller than the thickness of the circular metal blank[[)]].

~~035~~[00034] According to Figure 1, ~~in which the~~a sinking-in takes place slightly offset from the outer circumference of the circular metal blank 1 and toward the inside~~, the additional~~. An advantage is achieved such that an area 8 remains on the outer circumference of the circular metal blank 1~~, which area~~. Area 8 can be subjected to a subsequent treatment, for example, in order to form a profiling of ~~the type of the profiling of~~ a pulley or a toothing of a starter rim ~~or the like~~ (not shown).

~~036~~[00035] A contour, such as a toothing, can be formed in the tool 11 ~~(in the~~, or in a first or ~~in an additional~~ second additional tool[[)]], so that the flange 7 is provided with a corresponding contour ~~(particularly~~, such as a toothing 10[[)]] during the pressing ~~or the like~~.

~~037~~[00036] Figure 5 illustrates a blank 12, ~~which was~~ machined according to ~~the~~ a method of the ~~invention~~ present disclosure and produced from a flat circular metal blank for producing a starter rim. A tool 11 ~~is easily visible which has~~includes an outer abutment ring section 13, or abutment chuck, a ring 14 placed [[(]]or pressed[[)]] on for holding down the relatively thin circular metal blank ~~1~~ 12 in ~~the~~ an outer area~~, and the possibility of additionally~~. It is possible to have an additional pressing of the circular metal blank ~~also~~ 12 between the outer circumference and the inner flange in sections to be thinner or thicker and/or a pressing ~~it~~ of the blank 12 in ~~the~~ a direction of the axis S to be conical and/or stepped against ~~the~~ a correspondingly constructed bottom die of the tool 11.

~~038~~[00037] ~~This can take place~~One or more of the pressings can occur by ~~means of~~ the pressure roller 3 or an additional pressure roller or the hold-down roller ~~(indicated as the hold-down roller 15)~~15. ~~Here, the~~The flange ~~was~~ 7 is pressed from the tapering conical structure 4 into the tool 11 on ~~the~~ a side situated opposite the machining by ~~means of~~ the pressure roller 3.

~~039~~[00038] If a toothing, [[(]]such as a radial toothing[[)]] were formed in ~~this area~~the side situated opposite the machining by pressure roller 3, a toothing, ~~of the type of the~~such as toothing 10, would ~~additionally~~ be formed in the flange ~~(not visible~~7, as shown in dotted lines in Figure 5[[)]].

[00039] Although the present disclosure has been described and illustrated in detail, it is to be clearly understood that this is done by way of illustration and example only and is not to be taken by way of limitation. The scope of the present disclosure is to be limited only by the terms of the appended claims.

~~Reference Symbols~~

~~Circular metal blank~~	~~1~~
~~bore~~	~~2~~
~~pressure roller~~	~~3~~
~~conical structure~~	~~4~~
~~adjustment roller~~	~~5~~
~~pressure roller~~	~~6~~
~~flange~~	~~7~~
~~area~~	~~8~~
~~advancing flank~~	~~9~~
~~toothing~~	~~10~~
~~tool~~	~~11~~
~~blank~~	~~12~~
~~abutment ring section~~	~~13~~
~~ring~~	~~14~~
~~height~~	~~a~~
~~width~~	~~b~~
~~radii~~	~~R1, R2~~
~~thickness~~	~~d~~
~~median perpendicular~~	~~S~~
~~angle~~	~~α~~

~~CLAIMS~~I CLAIM:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) ~~Method for the production of a flange on a circular metal blank by means of at least one or more pressure roller(s), characterized in that~~

~~a) by means of at least one pressure roller (3), a particularly conically shaped structure (4), which tapers toward the median perpendicular (S) of the circular metal blank (1), is formed on the circular metal blank, and~~

~~b) from the conical structure (4), a flange (7) is formed on the circular metal blank (1) by means of a subsequent treatment.~~A method for the production of a flange on a circular metal blank by at least one pressure roller, the method steps comprising:

providing a circular metal blank;

providing at least one pressure roller;

forming a conically shaped structure on the circular metal blank, the conically shaped structure tapering toward a median perpendicular of the circular metal blank; and

forming a flange on the circular metal blank by a subsequent treatment, the flange being formed from the conically-shaped structure.

2. (Currently Amended) ~~Method for the production of a flange on a circular metal blank by means of at least one or more pressure roller(s), characterized in that~~

~~a) by means of the at least one pressure roller (3), the axial thickness of the circular metal blank is reduced at least in sections along its radial dimension and the material is shaped into a hub-type structure and/or a structure which is conical particularly with respect to the median perpendicular.~~

~~b) from the hub-type and/or conical structure (4), a flange (7) is formed on the~~

~~circular metal blank (1) by means of a subsequent treatment.~~A method for the production of a flange on a circular metal blank by at least one pressure roller, the method steps comprising:

providing a circular metal blank having an axial thickness;

providing at least one pressure roller;

reducing, at least in sections, the axial thickness along a radial dimension of the circular metal blank and shaping material of the circular metal blank into one of a hub and a conical structure; and

forming a flange on the circular metal blank by a subsequent treatment, the flange being formed from the hub or the conical structure.

3. (Currently Amended) ~~Method~~ The method according to ~~one of the preceding claims~~Claim 1, ~~characterized in that the~~wherein an axial dimension ~~or height~~ of the flange ~~(7)~~ is smaller than ~~its~~ a radial dimension of the flange.

4. (Currently Amended) ~~Method according to one of the preceding claims~~The method according to Claim 1, wherein a radial dimension of the flange is more than twice as large as an axial dimension of the flange.~~, characterized in that the radial dimension of the flange (7) is more than twice, particularly more than three times as large as its axial dimension.~~

5. (Currently Amended) ~~Method according to one of the preceding claims, characterized in that the axial extension of the flange (7) is only slightly larger than the thickness of the starting circular blank.~~The method according to Claim 2, wherein an axial extension of the flange is only slightly larger than the axial thickness of the circular metal blank.

6. (Currently Amended) ~~Method according to one of the preceding claims, characterized in that the pressure roller is sunk in Step "a" first into the circular metal blank and is then radially moved from the outside toward the inside~~the method according to Claim 1, wherein during the forming of the conically-shaped structure, the at least one pressure roller is sunk first into the circular metal blank and is then radially moved from an outside toward an inside of the circular metal blank..

7. (Currently Amended) ~~Method according to one of the preceding claims~~The method according to Claim 1, wherein an adjustment angle of the at least one pressure roller relative to an ~~, characterized in that the adjustment angle (α) of the pressure roller (3) relative to the~~ axial surface of the circular metal blank ~~(1)~~ is greater than 90°.

8. (Currently Amended) ~~Method~~ The method according to Claim ~~7~~1, ~~characterized in that the~~wherein an adjustment angle ~~(α)~~ of the at least one pressure roller ~~(3)~~ relative to ~~the~~ an axial surface of the circular metal blank is greater than 110° and smaller than 170°.

9. (Currently Amended) ~~Method~~ The method according to Claim ~~8~~1, ~~characterized in that the~~wherein an adjustment angle ~~(α)~~ of the at least one pressure roller ~~(3)~~ relative to ~~the~~ an axial surface of the circular metal blank is greater 115° and smaller than 150°.

10. (Currently Amended) ~~Method~~ The method according to Claim 1, wherein ~~one of the preceding claims, characterized in that,~~ during the forming of the ~~conical~~ conically-shaped structure, simultaneously one of an axially and/~~or~~ radially adjustable hold-down roller ~~is also running particularly~~runs on ~~the~~ a side of the circular metal blank situated radially

opposite the pressure roller and presses the circular metal blank down, ~~the circular metal blank~~ at least in sections, such that the ~~latter~~ circular metal blank does not lift off ~~the~~ a tool ~~(11)~~ or arch forward in ~~the~~ an area in which the pressure roller ~~(3)~~ is moving.

11. (Currently Amended) ~~Method~~ The method according to ~~one of the preceding claims, characterized in that~~Claim 1, wherein the subsequent treatment ~~takes place by means of~~ includes an additional pressure roller ~~(5, 6)~~.

12. (Currently Amended) ~~Method~~ The method according to Claim ~~10~~11, ~~-~~wherein ~~characterized in that~~ the additional pressure roller ~~(5)~~is a rotatable pressure roller that sinks axially into the ~~conical~~ conically-shaped structure ~~(4)~~ during the subsequent treatment.

13. (Currently Amended) ~~Method~~ The method according to Claim 11, ~~characterized in that~~wherein the additional pressure roller ~~(6)~~ sinks radially into the ~~conical~~ conically-shaped structure ~~(4)~~ during the subsequent treatment.

14. (Currently Amended) ~~Method~~ The method according to Claim 1, wherein ~~one of the preceding claims, characterized in that~~ the subsequent treatment takes place by ~~means of~~ a press.

15. (Currently Amended) ~~Method~~ The method according to Claim 1, wherein an ~~one of the preceding claims, characterized in that the~~ inside diameter of the circular metal blank ~~(1) with~~ including the formed~~the~~ flange ~~(7) after the Steps "a" and "b"~~ is smaller than ~~the~~ an inside diameter of ~~the~~ a centric bore ~~(2)~~ of the circular metal blank ~~(1) in the starting workpiece.~~

16. (Currently Amended) ~~Method~~ The method according to ~~one of the preceding claims, characterized in that~~Claim 1, wherein during the forming of the conically-shaped structure, the circular metal blank ~~(1) in Step "a"~~ is penetrated by a conically tapering mandrel.

17. (Currently Amended) ~~Method~~ The method according to ~~one of the preceding claims, characterized in tha~~Claim 1, wherein the circular metal blank ~~(1)~~ is held by an abutment chuck on ~~its~~ an outer circumference of the circular metal blank.

18. (Currently Amended) ~~Method~~ The method according to Claim 1, wherein ~~one of the preceding claims, characterized in that, in addition,~~ the circular metal blank ~~(1)~~ is held down on ~~its~~ a side facing the at least one pressure roller by ~~means of~~ a ring.

19. (Currently Amended) ~~Method~~ The method according to Claim 1, wherein ~~one of the preceding claims, characterized in that, in addition,~~ the circular metal blank ~~(1)~~ is held down on ~~its~~ a side facing the at least one pressure roller, at least in sections, by ~~means of~~ a hold-down roller.

20. (Currently Amended) ~~Method~~ The method according to Claim 1, wherein~~one of the preceding claims, characterized in that~~ the flange is constructed on ~~the~~ a side of the circular metal blank facing away from the at least one pressure roller.

21. (Currently Amended) ~~Method~~ The method according to Claim 1, wherein~~one of the preceding claims, characterized in that~~ the flange is formed on ~~the~~ a side of the circular metal blank facing the at least one pressure roller.

22. (Currently Amended) ~~Method~~ The method according to Claim 1, wherein~~one of the preceding claims, characterized in that~~ the flange extends on both axial sides of the circular metal blank.

23. (Currently Amended) ~~Method~~ The method according to Claim 1, wherein~~one of the preceding claims, characterized in that~~ the flange is pressed into a tool having a toothing contour, ~~particularly a toothing,~~ so that, on ~~its~~ a side of the flange facing the tool, the flange includes ~~is provided with~~ a corresponding toothing contour~~, particularly a toothing (10)~~.

24. (Currently Amended) ~~Method~~ The method according to Claim 23, wherein~~one of the preceding claims, characterized in that~~ the tool ~~(11)~~ rotates during a machining of the circular metal blank~~the treatment~~.

25. (Currently Amended) ~~Method~~ The method according to Claim 1, wherein the at least one ~~one of the preceding claims, characterized in that the~~ pressure rollers ~~and/or hold-down rollers are~~ is disposed in a rotatable manner.

26. (Currently Amended) A ~~Transmission~~ transmission part having ~~a~~ an integral flange around a centric bore, the flange produced according to the method of Claim 1 ~~characterized in that the flange is produced corresponding to a method according to one of the preceding claims and is connected in one piece with the remaining transmission part~~.

27. (Currently Amended) ~~Transmission~~ The transmission part according to Claim ~~22~~26, wherein~~characterized in that~~ the transmission part is ~~constructed~~ formed as a starter rim ~~which is produced~~ from ~~a~~ the circular metal blank, the circular metal blank having an initial

width of ~~fewer~~ less than 7 mm~~, particularly fewer than 5 mm, preferably fewer 4 mm~~, the starter rim, in sections, being thinner than the ~~starting~~ initial width of the circular metal blank, and the ~~staring rim having a~~ flange being located toward an inner passage hole~~, which flange~~ and ~~is~~ formed in one piece by ~~means of the~~a pressing ~~method~~.

28. (New) The method according to Claim 10, wherein the hold-down roller is disposed in a rotatable manner.

29. (New) A transmission part having an integral flange around a centric bore, the flange produced according to the method of Claim 2.

30. (New) The transmission part of Claim 29, wherein the transmission part is formed as a starter rim from a circular metal blank having an initial width less than 7mm, the starter rim, in sections, being thinner than the initial width of the circular metal blank, and the flange being located toward the centric bore and formed in one piece by a pressing.

IN THE ABSTRACT:

Please replace the abstract with the following:

~~ABSTRACT:~~

~~A method of forming a flange on a circular metal blank (1) has the following steps:~~

~~By means of at least one pressure roller (3), a hub-type and/or conical structure is formed on the circular metal blank, and~~

~~from the conical structure (4), a flange (7) is formed on the circular metal blank (1) by means of a subsequent treatment.~~

~~Figure 3~~

ABSTRACT OF THE DISCLOSURE

A method for the production of a flange on a circular metal blank by at least one pressure roller, the method steps comprising: providing a circular metal blank; providing at least one pressure roller; forming a conically-shaped structure on the circular metal blank; and, forming a flange on the circular metal blank. Further disclosed is a transmission part formed by the method.